

CA20N
IT80
-A56

3 1761 12059713 3




OCAM ONTARIO CENTRE FOR
ADVANCED MANUFACTURING

1987 Annual Report

**Ontario Centre
for
Advanced Manufacturing**



CARON
IT 80
-A567



Digitized by the Internet Archive
in 2024 with funding from
University of Toronto

<https://archive.org/details/31761120597133>

Contents

	Page
Letter of Submittal	3
The Corporation	4
Year in Review	5
The Challenge Ahead	6
Client Testimonials	7
Contracts by Industry Segment	9
Financial Statements	13
Board of Directors	22
OCAM Centres	23

The Honourable Hugh P. O'Neil

Minister of Industry, Trade and Technology

Dear Minister:

I take great pleasure in submitting to you the 1987 Annual Report of the Ontario Centre for Advanced Manufacturing (OCAM).

In this past fiscal year (1986/87), OCAM continued to deliver practical and expert assistance to help Ontario manufacturers compete and survive in a rapidly changing marketplace. To date, almost 1,000 Ontario companies have contracted with OCAM's technology applications centres for technical assistance in upgrading their design and manufacturing operations.

OCAM's original business plan called for the Corporation to generate 50 percent of needed revenue by its fifth year of operation. I am pleased to report that OCAM remains ahead of target, and as of the first quarter of fiscal 1987/88 (the start of the fifth year), 50 percent self-sufficiency had been achieved. It is our intent to follow your directive and continue the drive to greater self-sufficiency.

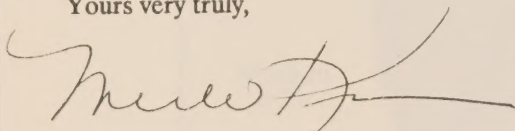
Of course, this will necessitate some major changes in OCAM's organization and programs. Over the next several years, we will concentrate more on revenue generating activities such as consulting services, while reducing the awareness program and seminars.

The technology of advanced manufacturing continues to change. International competition is increasing and the marketplace is making tougher demands for product features, productivity, cost and quality. OCAM will continue to update and adjust its programs to meet these challenges.

Strong support from your Ministry and the cooperation of the other technology centres and Ministry agencies have been instrumental in OCAM's success. Credit is also due to OCAM's Board of Directors for their vision and guidance, and to OCAM's staff, lead by President Ken Jones, for their hard work and dedication.

I believe, Minister, that OCAM is playing an important role in helping Ontario industry modernize, and with your support it will continue to do so.

Yours very truly,



Merle Kriss

Chairman

The Corporation

OCAM (Ontario Centre for Advanced Manufacturing) is an Ontario Crown Corporation established in 1982 to help Ontario industry improve its competitive standing through the use of advanced manufacturing technology and methods. Operating on a fee-for-service basis, the Corporation offers objective and expert assistance to companies modernizing their manufacturing operations.

OCAM's two major technology applications centres -- the Ontario CAD/CAM Centre in Cambridge and the Ontario Robotics Centre in Peterborough -- combined offer a full range of services covering virtually every aspect of the industrial process, from initial design and engineering technology, through to manufacturing and final product testing. Recognizing an important need, OCAM has recently begun offering assistance to its clients in the broader areas of manufacturing and technology management and planning.

Rather than restrict itself to particular technologies or methods, OCAM draws on its extensive manufacturing experience to help companies sharpen productivity and quality by applying appropriate levels of technology. This may involve basic industrial engineering through to state-of-the-art automation or computer technology.

OCAM has expertise in a variety of advanced technologies and methods, including:

- CAD (Computer Aided Design and/or Drafting), CAM (Computer Aided Manufacturing) and CAE (Computer Aided Engineering).
- NC (Numerical Controlled Machines)
- MIS (Manufacturing Information Systems) and MRP II (Manufacturing Resource Planning).
- Computerized Scheduling
- Industrial Engineering.
- Manufacturing Management Methods and Controls such as JIT (Just in Time Manufacturing) and TQC (Total Quality Control).
- Industrial Controllers, Robotics, Flexible Automation, and Automated Inspection

OCAM's **Windsor Centre** (Canada-Ontario Centre for Advanced Manufacturing - Windsor), which is jointly funded by the Federal Government, provides OCAM's total range of expertise to Windsor and district industries.

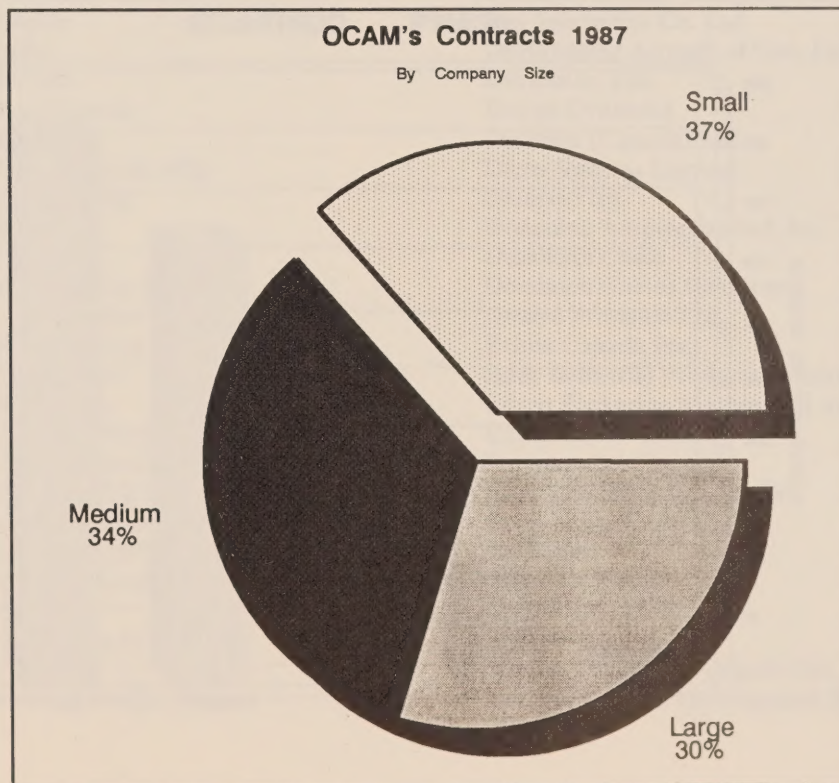
Year in Review

Nineteen eighty-seven was another good year for OCAM, marked by increased growth in contracts to private industry combined with a greater degree of self funding. The highlights include:

- A 24% increase (to 458) in the number of contracts signed.
- A 20% increase in revenue.
- Major demonstration projects with Champion Road Machinery, R. Reininger and Sons, and Canadian General Electric.
- The establishment of a significant research project into computer aided engineering for Ontario's important metalforming industry.
- High awareness among Ontario Manufacturers. In an independent survey, OCAM's centres were rated the top

sources of outside technical advice and assistance in adopting manufacturing technology.

- Extensive awareness activities in cooperation with industry associations and other professional groups, including:
 - a number of successful industry events and seminars;
 - working closely with TVOntario on an educational series called 'Coming to a Factory Near You' which deals with factory automation;
 - widely publicizing new manufacturing technologies and methods and Ontario companies that have been successful with them.



The Challenge Ahead

Despite encouraging signs that Ontario manufacturers are modernizing in growing numbers, studies indicate there are still some important barriers to the wider adoption of technologies such as CAD/CAM and robotics. These barriers included finding qualified employees, cost justifying the equipment, determining what to buy, and understanding the technology.

OCAM has developed a number of services designed to overcome these barriers, including:

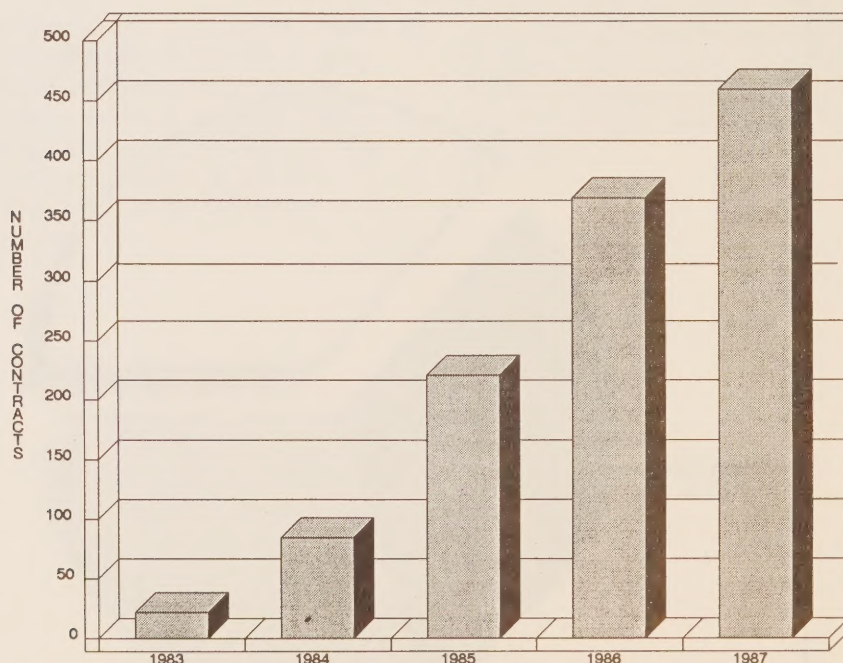
- Consulting on equipment selection and implementation.
- In-plant opportunity studies that identify and prioritize automation opportunities.
- Feasibility studies.
- In-depth conceptual engineering studies.

- Demonstration projects, in which the centre accepts turnkey responsibility to concept and install an advanced system.
- Customized on-site training.

Although, the Corporation was originally established as a technology advocate (a "technology push" organization) many manufacturers either do not need or are not yet ready for sophisticated technology.

Accordingly, new approaches are being developed, such as the Manufacturing Operations Analysis which is designed to help a company come up with a modernization plan tailored to its own needs and technology level. This approach enables a company to zero in on the principal areas on which it should concentrate in planning to be world competitive.

OCAM'S CONTRACTS



Client Testimonials

Over the past four years, OCAM's centres have undertaken over 1,000 contracts with companies across the broad spectrum of Ontario industry. Following is a list of clients who have publicly endorsed OCAM's services.

Advanced Home Security Systems
 Advanced Insulation Covers
 AEG Bayly Inc.
 Allen-Bradley Canada
 Almag Aluminum Limited
 Amdahl Communications
 Amerock Inc.
 Arriscraft Corporation
 Ascolectric Limited
 Associated Spring Limited
 Atc Controls Inc.
 Atomic Energy Canada Ltd.
 Automated Word/Flo Inc.
 Babcock & Wilcox Canada
 Bank of Canada
 Boart Canada
 Bombardier Inc.
 Boy Scouts of Canada
 Budd Canada Inc.
 Burgess Power Train & Mfg.
 Butler Manufacturing
 Butler Polymet
 CADAM Inc.
 Cambridge Stampings Inc.
 Campeau Corporation
 Canada Alloy Castings Ltd.
 Canada Forgings Inc.
 Canada Packers Inc.
 Canadian A.S.E Limited
 Canadian Astronautics Ltd.
 Canadian General Electric Co. Ltd.
 Canadian Industrial Innovation Centre
 Chalmers Suspension Int.
 Champion Road Machinery
 Chempac
 Clemmer Industries (1964) Ltd.
 Com Dev Limited
 Computer Aided Design Systems

Computer Logics Ltd.
 Computer X Canada Ltd.
 Conlin Engineering & Planning
 Consulgaz Inc.
 Control Data Canada Ltd.
 Coeey Metal Products Limited
 Correctional Services of Canada
 Courtice Steel Limited
 Crombie Machines Limited
 C.T.S. of Canada Limited
 Courtice Steel Limited
 Crombie Machines Limited
 Cygnet Group
 Davidson Rubber Company Ltd.
 Day Specialties Co. Ltd.
 DeHavilland Aircraft of Can. Ltd.
 Decoustics Ltd.
 Design Dynamics
 Devilbiss (Canada) Ltd.
 Dicon Systems Limited
 Diemaco Inc.
 Dominion Automotive Ind. Inc.
 Dominion Chain
 Dominion Colour Company
 Donlee Precision Ltd.
 Echlin Canada Inc.
 Eddy Industrial Products Division
 Edson Packaging Machinery Ltd.
 Electrohome Limited
 Environment Canada
 Erno Manufacturing Co. Ltd.
 Ernst Leitz (Canada) Ltd.
 Esco Ltd.
 Etymonic Design
 Evercrete Limited
 Exanno
 Ex-Cell-O Corp. of Canada Ltd.
 Federal Business Development Bank

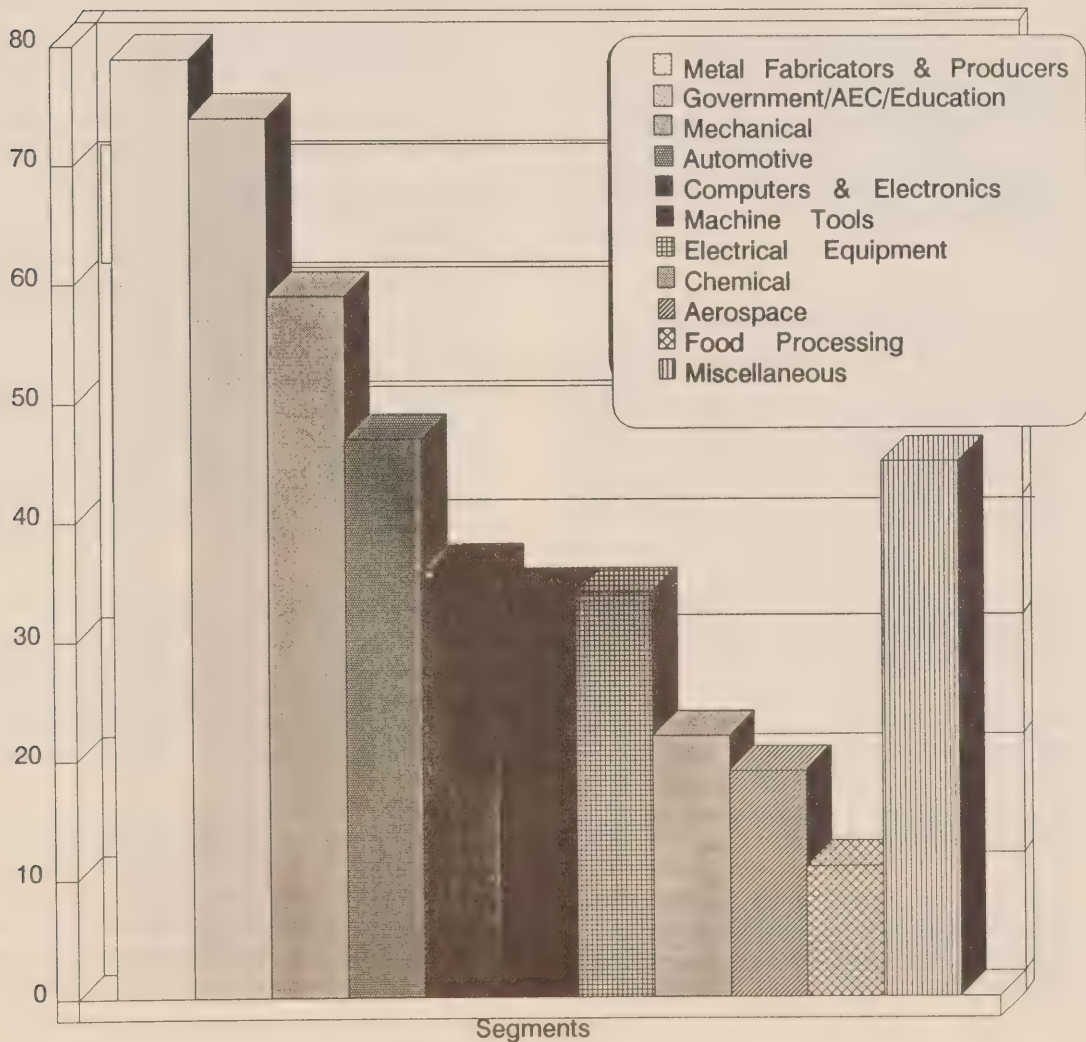
Federal Pioneer Limited
Fiberglas Canada Inc.
Fisher Gauge Limited
Fred Schaeffer & Assoc. Ltd.
Forged Forks (Erectoweld)
Frip Panels
Geac Computers International Inc.
General Motors of Canada
Glegg Water Conditioning Inc.
Grimsby Custom Tooling Ltd.
Guideline Instruments Ltd.
Guthrie Canadian Investments Inc.
Hamilton Wire Products
Hartz Canada Inc.
Hastings Inc.
H.H. Angus & Associates
Honeywell Ltd.
Hoover Universal
Horn Plastics Limited
Imperial Tobacco Limited
INCO Ltd.
Industrial Tire
Inglis Limited
Invotronics Research
ITT Business Communications
Jav-Vee
Jet Moulding Compound Limited
John Deere Limited
John Ziner Lumber Ltd.
JS Redpath
Jutras Die Casting Limited
Kenebuc (Galt) Ltd.
Kilian Manufacturing Ltd.
Kostuch Engineering Ltd.
Laser International
L&L Tool Limited
Lamko Tool & Mould Inc.
Ledco Limited
Long Manufacturing Limited
M&R Industrial Services
MBM Ceramics (1983)
Mantic Steel Industries
Marathon Equipment Ltd.
Marsan Foods Limited
Marshall Cummings & Assoc.
Mechanical Cables Limited
Mediacom Incorporated
Meridian Technologies Ltd.
Metals & Alloys Company Limited

Metalumen Manufacturing Inc.
Michem Electronics
Ministry of Transportation & Communications
Morewood Industries Limited
Motorola Dacscan Limited
Motor Wheel Corp. of Canada Ltd.
NW Clayton Co. Ltd.
Neish Owen Rowland Roy
Northern Alberta Institute of Technology
Optical Recording Corporation
Ortho Pharmaceutical Canada Ltd.
Oston Limited
Outboard Marine Corporation
P.J. Wallbank Manufacturing Ltd.
Petro Canada Products Inc.
Phillips Cables Limited
Polcz Automotive Industries
Polygon Industries Ltd.
PRO-ECO Limited
Pumps & Softeners Limited
Quaker Oats Company of Canada
Ralston Purina Canada Inc.
Raymond Industrial Equipment Ltd.
Rector Foods Limited
Regal Tool & Engineering Co.
Reid Dominion Packaging Limited
Reliance Electric Limited
R. Reininger and Son Ltd.
Reuter-Stokes Canada Ltd.
Rockwell International Suspension Systems Co.
Sandvik Process Systems Canada Ltd.
Scott Paper Limited
Seaman Beverages
SKD Company
Snap-on Tools of Canada Ltd.
Springco Industries Ltd.
Standard Products (Canada) Ltd.
Standard Tube Canada Inc.
St. Lawrence Starch Company Ltd.
Sullivan Strong Scott Limited
Suncor Inc.
TCI Superior - Div. Muller Canada Inc.
T.S. Manufacturing
TAMCO Limited
Tarxien Company Limited
Teklogix Inc.
Telesat Canada

Thomson-CSF Systems Can. In.
 Temro, Division of Budd Canada Inc.
 TIE/Communication Canada Inc.
 Trailmobile Group of Companies Ltd.
 Tridon Limited
 Trimaster Manufacturing Ltd.
 Tweed Steel
 Unitron Industries Limited
 UTDC Inc.
 Vac-Aero International Inc.
 Varta Batteries Limited

Versatile Sstems Engineering Inc.
 Velcro Canada
 Vickers Engineering
 Waltec Inc.
 Walter Industries
 Waterloo Concrete Products
 Wegu Canada Inc.
 West Machinery Co. Ltd.
 Westinghouse Canada Inc.
 Woodings-Railcar Ltd.
 Zepf Technologies Inc.

OCAM's Contracts 1987
 By Industry Segment



Case Studies

Investing in automation can be a risky business. Advanced manufacturing technology can be confusing, even intimidating. It can be complex and expensive. Manufacturers who rush into costly automation without doing the upfront work -- determining their real needs, simplifying their manual systems, training their staff -- are virtually guaranteed to fail. OCAM is proud to have worked with the companies profiled below, each of which went about the business of automation the right way.

Banking on Success

Ed Regan is a commercial artist, mold-maker, entrepreneur, and partner at **Redoe Mold** of Windsor, Ontario. Little wonder, then, that Regan's enthusiasm for the latest CAD/CAM technology is matched only by his acute understanding of the modern bank manager.

"In the beginning, if I had gone straight to the bank manager and said that I wanted to go CAD/CAM, he would have had a heart attack."

Redoe decided to get OCAM's help before they risked the health of their bankers. In 1984, Ed and his partner hired OCAM to do a justification study, outlining the first steps toward computer-aided automation. The OCAM study recommended starting with a computer-numerical-control (CNC) milling machine, worth roughly a quarter of a million dollars. Armed with OCAM's findings, Regan headed to the bank.

"When bankers see the kind of reporting that OCAM produced on evaluation and justification, it eases them. It's not just the shop owner in there with a pipe dream. It's reality, and it can be implemented."

Regan got the money and the machine, and has never looked back. The new CAM equipment brought new business into the shop, and CAD was the next logical step. Again,

Regan asked the specialists at OCAM to help select and to benchmark the right tools for the job.

"We felt our education was not up to a standard where we could adequately test vendors. OCAM people did have these qualifications."

And so CAD/CAM became a reality at Redoe. But Regan found that even when your equipment works perfectly, "people problems" can still hold your company back. "Along the way," he recalls, "we forgot about the guys out back." This time, OCAM responded with a customized training seminar for Redoe's workers. And according to Regan, it worked. "It dispelled a lot of fears...I figure it was very valuable."

Today, Redoe is riding high thanks to the sound judgement of men like Ed Regan, and the dependable support of OCAM. From the bank manager's office, to the boardroom or the shop floor, OCAM's technical guidance and support were invaluable.

Champion Makes the Grade

When OCAM first opened its doors four and a half years ago, one of the first companies to call was **Champion Road Machinery**. Since that time OCAM has worked with the company on

a variety of automation projects.

Champion is the number two maker of road graders, after Caterpillar, and the world's lowest cost producer. It sells well over \$100 million in graders and parts each year, and employs about 1,000 people, the bulk of them at its plant in Goderich, Ontario.

"Champion has been a leader in road grader technology and design for many years and it is our intention to keep that lead," says manufacturing vice-president Mike Sully. In keeping with that goal, the company is making a significant investment in new design and manufacturing technology.

Champion is using CAD/CAM for design and drafting, MRP II to control inventory, and microcomputers to program its variety of numerically controlled machines such as lathes, drills, punches and steel plate burners. Recently, the company ushered in its second century of manufacturing with its first robot -- used for welding a six-and-a-half-foot grader component called a tandem case (basically a chain and sprocket enclosure). The \$700,000 robotic cell will eventually be used to weld 12 different grader components, beginning with the tandem case.

"We think the robot is going to force us to improve the quality of our product," says Sully. This is because the seam-finding robot demands tight accuracies, unlike a human welder who can compensate for imperfectly fitting components.

Sully knew from the beginning that the move into robotics would not be easy, and so he turned for help to OCAM's factory automation experts. The OCAM project team developed the overall cell design, selected the vendor, and helped, among other things, with training.

Champion is banking on a three year payback, through savings in material, floor space, welding equipment and direct labour. Manual welding that used to take over an hour and a half is now completed by the robot in under 40 minutes. And the welding quality is better and more consistent.

For Champion, the search for improved factory automation continues -- with the help of OCAM.

"There are a lot of small companies out there like us who need a helping hand when it comes to new technology," says Sully. "OCAM was just the support group we were looking for. Automation can be a large investment, but it's a critical one for survival in today's competitive world."

Pulling Together

Davidson Rubber in Port Hope produces over six thousand dashboards -- or 'instrument panel pads' -- every day. The company is a Spear One supplier to GM, and a Q1 supplier to Ford. "Automated technology," say Bob Killen, director of advanced operations, "is the guiding hand of their product advances."

Davidson Rubber recently added a robotic water-jet trimming operation to its production line. "Tooling changes that used to take two weeks can now be programmed in just 20 minutes. Costs are greatly reduced -- ours, the customer's, the car buyer's -- everybody gains through this new technology."

Killen describes how he approached robot technology.

"We looked at a lot of equipment and manufacturers, and finally realized that we weren't very good at assessing our own needs

concerning robotics. So we called OCAM."

OCAM's automation experts assessed the feasibility of robotics at Davidson with a thorough evaluation. "OCAM then researched the marketplace, and came back with a very comprehensive study. The OCAM people are real professionals."

Davidson's water-jet trimmer now delivers cutting consistency, flexibility -- and of course, top quality.

No Looking Back

Ken Macintyre is an engineering executive with a sharp eye for business. As VP at **Dominion Automotive** of Toronto, he manufactures car and truck mirrors for North America's leading auto firms. If you've ever checked behind you in a Chrysler wagon, you've seen Ken's work.

The mirror's smooth, blended surfaces, and irregular curves present tough design and manufacturing challenges. Macintyre pushed toward CAD technology for two simple reasons: First, information. "With CAD's ability to transfer information accurately through all stages you're able to define things properly ...

get them right the first time, and then more rapidly respond to changes." Second, experience. It's for real when O.E.M.'s say they will only deal with vendors who have CAD.

But knowing you need the technology and actually buying a system are two different things.

"The justification of this kind of capital investment is not easy ... and after that, the purchasing decision is not only a very important one, it's also a very baffling one."

To advise on both his justification and actual purchasing decision, Macintyre brought in the experts from OCAM.

Aided by OCAM's technical expertise, and critical vendor selection methods, Dominion is now introducing CAD technology to their design department. And this, says Macintyre, is just the beginning. "Even now I can see we'll have new capacity to go and bid on other jobs. It's a tool for growth. For any company that's prepared to take the leap forward ... there's plenty of business out there."

Thanks to OCAM, Dominion Automotive now spends less time looking over its shoulder in the rear view mirror business.

Financial Statements

Year Ended March 31, 1987

INDEX

	PAGE
AUDITORS' REPORT	14
FINANCIAL POSITION	15
STATEMENT OF OPERATIONS	16
STATEMENT OF RESERVE FOR CAPITAL ASSETS	17
STATEMENT OF CHANGES IN FINANCIAL RESOURCES	18
EXPLANATORY FINANCIAL NOTES	19-21

Auditors' Report

TO:

THE BOARD OF DIRECTORS OF THE
ONTARIO CENTRE FOR ADVANCED MANUFACTURING
AND THE HONOURABLE MINISTER OF INDUSTRY,
TRADE AND TECHNOLOGY OF THE PROVINCE OF ONTARIO

WE HAVE EXAMINED THE FINANCIAL POSITION OF THE ONTARIO CENTRE FOR ADVANCED MANUFACTURING AS AT MARCH 31, 1987 AND THE STATEMENTS OF OPERATIONS, RESERVE FOR CAPITAL ASSETS AND CHANGES IN FINANCIAL RESOURCES FOR THE YEAR THEN ENDED. OUR EXAMINATION WAS MADE IN ACCORDANCE WITH GENERALLY ACCEPTED AUDITING STANDARDS, AND ACCORDINGLY INCLUDED SUCH TESTS AND OTHER PROCEDURES AS WE CONSIDERED NECESSARY IN THE CIRCUMSTANCES.

IN OUR OPINION, THESE FINANCIAL STATEMENTS PRESENT FAIRLY THE FINANCIAL POSITION OF THE CORPORATION AS AT MARCH 31, 1987 AND THE RESULTS OF ITS OPERATIONS AND THE CHANGES IN ITS FINANCIAL RESOURCES FOR THE YEAR THEN ENDED IN ACCORDANCE WITH GENERALLY ACCEPTED ACCOUNTING PRINCIPLES APPLIED ON A BASIS CONSISTENT WITH THAT OF THE PRECEDING YEAR.

CAMBRIDGE, ONTARIO
MAY 15, 1987

KELLY GRAHAM MYSKA & PARTNERS
CHARTERED ACCOUNTANTS

Financial Position

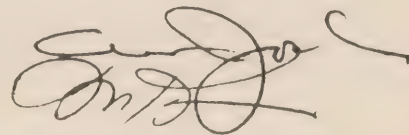
March 31, 1987

	1987	1986
ASSETS		
CASH	705,090	391,400
ACCOUNTS RECEIVABLE, TRADE	730,024	785,948
ACCOUNTS RECEIVABLE, PROVINCE OF ONTARIO		57,620
WORK IN PROCESS	285,504	67,336
PREPAID EXPENSES	<u>43,618</u>	<u>54,697</u>
CURRENT ASSETS	1,764,236	1,357,001
FIXED ASSETS (NOTE 4)	<u>4,162,404</u>	<u>5,788,549</u>
	<u>\$5,926,640</u>	<u>\$7,145,550</u>
LIABILITIES		
ACCOUNTS PAYABLE, TRADE	1,366,179	1,315,369
ACCOUNTS PAYABLE, PROVINCE OF ONTARIO	357,057	
DEFERRED REVENUE	<u>41,000</u>	<u>41,632</u>
CURRENT LIABILITIES	1,764,236	1,357,001
EQUITY		
RESERVE FOR CAPITAL ASSETS	<u>4,162,404</u>	<u>5,788,549</u>
	<u>\$5,926,640</u>	<u>\$7,145,550</u>

THE EXPLANATORY FINANCIAL NOTES ON PAGES 19 THROUGH 21 FORM AN INTEGRAL PART OF THESE FINANCIAL STATEMENTS.

APPROVED ON BEHALF OF THE BOARD

DIRECTOR
DIRECTOR



Statement Of Operations

Year Ended March 31, 1987

	1987	1986
REVENUE		
CONSULTING REVENUE	2,895,302	2,506,228
DEMONSTRATION PROJECTS REVENUE	706,162	489,251
INTEREST INCOME	<u>98,041</u>	<u>73,493</u>
	<u>3,699,505</u>	<u>3,068,972</u>
EXPENDITURE		
SALARIES AND BENEFITS	4,454,423	3,954,600
DEMONSTRATION PROJECTS COSTS	593,564	577,982
RECRUITING AND RELOCATION	90,978	142,522
PROFESSIONAL AND CONSULTING FEES	604,413	348,593
OCCUPANCY AND OFFICE	972,788	809,051
TECHNOLOGY ADVANCEMENT AND TRAVEL	959,534	867,174
MARKETING AND COMMUNICATIONS	724,330	736,102
WORKSHOPS, SEMINARS AND EXHIBITIONS	403,238	321,675
EQUIPMENT RENTAL AND TIME SHARING	41,670	37,354
MAINTENANCE	602,479	468,097
DEPRECIATION AND AMORTIZATION	2,292,006	1,805,086
OTHER	<u>120,547</u>	<u>126,086</u>
	<u>11,859,970</u>	<u>10,194,322</u>
EXCESS OF EXPENDITURE OVER REVENUE	8,160,465	7,125,350
TRANSFER FROM RESERVE FOR CAPITAL ASSETS (PAGE 17)	<u>2,292,006</u>	<u>1,805,086</u>
EXCESS OF EXPENDITURE OVER REVENUE EXCLUDING DEPRECIATION	<u>5,868,459</u>	<u>5,320,264</u>
CONTRIBUTION FROM THE PROVINCE OF ONTARIO FOR OPERATING PURPOSES	5,868,459	5,320,264
FOR CAPITAL PURPOSES	<u>573,549</u>	<u>1,526,647</u>
	6,442,008	6,846,911
TRANSFER TO RESERVE FOR CAPITAL ASSETS (PAGE 17))	<u>573,549</u>	<u>1,526,647</u>
	<u>5,868,459</u>	<u>5,320,264</u>
	<u>\$NIL</u>	<u>\$NIL</u>

THE EXPLANATORY FINANCIAL NOTES ON PAGES 19 THROUGH 21 FORM AN
INTEGRAL PART OF THESE FINANCIAL STATEMENTS

Statement Of Reserve For Capital Assets Year Ended March 31, 1987

	1987	1986
BALANCE AT BEGINNING OF YEAR	5,788,549	5,571,219
CONTRIBUTIONS FOR CAPITAL ASSETS		
PROVINCE OF ONTARIO (PAGE 16)	573,549	1,526,647
GOVERNMENT OF CANADA	<u>92,312</u>	<u>495,769</u>
	6,454,410	7,593,635
TRANSFER TO OPERATIONS (PAGE 16)	<u>2,292,006</u>	<u>1,805,086</u>
BALANCE AT END OF YEAR	<u><u>\$4,162,404</u></u>	<u><u>\$5,788,549</u></u>

THE EXPLANATORY FINANCIAL NOTES ON PAGES 19 THROUGH 21 FORM AN INTEGRAL PART OF THESE FINANCIAL STATEMENTS.

Statement Of Changes In Financial Resources Year Ended March 31, 1987

	1987	1986
FINANCIAL RESOURCES WERE PROVIDED BY		
OPERATIONS		
REVENUE	3,699,505	3,068,972
CONTRIBUTION FROM PROVINCE OF ONTARIO FOR OPERATING PURPOSES	8,160,465	7,125,350
ADD (DEDUCT) ITEMS NOT AFFECTING WORKING CAPITAL		
DEPRECIATION AND AMORTIZATION	2,292,006	1,805,086
TRANSFER FROM RESERVE FOR CAPITAL ASSETS	<u>(2,292,006)</u>	<u>(1,805,086)</u>
	11,859,970	10,194,322
CONTRIBUTIONS FOR CAPITAL ASSETS		
PROVINCE OF ONTARIO	573,549	1,526,647
GOVERNMENT OF CANADA	92,312	495,769
PROCEEDS FROM SALE OF FIXED ASSETS	<u>103,879</u>	<u>30,607</u>
	<u>\$12,629,710</u>	<u>\$12,247,345</u>
FINANCIAL RESOURCES WERE USED FOR		
OPERATIONS	11,859,970	10,194,322
ADDITIONS TO FIXED ASSETS	<u>769,740</u>	<u>2,053,023</u>
	<u>\$12,629,710</u>	<u>\$12,247,345</u>

THE EXPLANATORY FINANCIAL NOTES ON PAGES 19 THROUGH 21 FORM AN INTEGRAL PART OF THESE FINANCIAL STATEMENTS.

Explanatory Financial Notes

Year Ended March 31, 1987

1. SIGNIFICANT ACCOUNTING POLICIES

THIS SUMMARY OF THE MAJOR ACCOUNTING POLICIES OF THE CORPORATION IS PRESENTED IN ORDER TO ASSIST THE READER IN EVALUATING THE FINANCIAL STATEMENTS CONTAINED HEREIN. THESE POLICIES HAVE BEEN FOLLOWED IN ALL MATERIAL RESPECTS FOR THE PERIODS COVERED:

(A) INTEREST INCOME

INTEREST INCOME EARNED ON CASH ON DEPOSIT IS RECORDED ON THE ACCRUAL BASIS WHEREBY INCOME EARNED BUT NOT RECEIVED AT MARCH 31 IS RECORDED IN THESE FINANCIAL STATEMENTS.

THIS INTEREST INCOME IS APPLIED TO REDUCE THE ANNUAL OPERATING EXPENSE ALLOCATION FROM THE PROVINCE OF ONTARIO DURING THE YEAR.

(B) INVESTMENT IN FIXED ASSETS

THE ACQUISITION COST OF MAJOR ADDITIONS AND IMPROVEMENTS ARE CAPITALIZED AND EXPENDITURES FOR MAINTENANCE AND REPAIRS WHICH DO NOT IMPROVE OR EXTEND THE USEFUL LIFE OF THE RESPECTIVE ASSETS ARE CHARGED TO INCOME.

AT THE TIME OF DISPOSAL OR RETIREMENT OF FIXED ASSETS, THE COST OF THE ASSET AND RELATED ACCUMULATED DEPRECIATION ARE REMOVED FROM THE ACCOUNTS AND THE RESULTING GAIN OR LOSS IS REFLECTED IN "DEPRECIATION EXPENSE" IN THE STATEMENT OF OPERATIONS.

EQUIPMENT AND FURNITURE AND FIXTURES ARE DEPRECIATED BY THE STRAIGHT-LINE METHOD AT RATES CALCULATED TO AMORTIZE THE COST OF THE ASSETS, LESS SALVAGE VALUE, OVER THEIR ESTIMATED USEFUL LIVES. LEASEHOLD IMPROVEMENTS ARE AMORTIZED BY THE STRAIGHT-LINE METHOD OVER THE TERMS OF THE RESPECTIVE LEASES.

(C) RECOGNITION OF INCOME

INCOME AND EXPENDITURES ARE RECOGNIZED AND RECORDED IN THESE FINANCIAL STATEMENTS UTILIZING THE ACCRUAL METHOD WHEREBY INCOME IS RECORDED WHEN EARNED AND EXPENDITURES ARE RECORDED WHEN INCURRED. REVENUE RECEIVED WHICH IS UNEARNED IS SHOWN AS DEFERRED REVENUE IN THE STATEMENT OF FINANCIAL POSITION.

(D) CONTRIBUTIONS FROM THE PROVINCE OF ONTARIO

THE CENTRE RECEIVES FUNDS QUARTERLY IN ADVANCE FOR OPERATING AND CAPITAL PURPOSES FROM THE PROVINCE OF ONTARIO.

THE OPERATING FUNDS OFFSET CURRENT NET OPERATING EXPENDITURES AND ACCORDINGLY ARE PRESENTED IN THE STATEMENT OF OPERATIONS. THE CAPITAL FUNDS WHICH RELATE TO THE ACQUISITION, NET OF CAPITAL DISPOSALS, OF HIGH TECHNOLOGY EQUIPMENT AND OTHER CAPITAL ITEMS ARE PRESENTED IN THE STATEMENT OF RESERVE FOR CAPITAL ASSETS AND RECOGNIZED AS INCOME AS THE DEPRECIATION ON THE RELATED ASSETS ARE CHARGED AGAINST OPERATIONS.

(E) CONTRIBUTIONS FROM THE GOVERNMENT OF CANADA

DURING FISCAL 1985, THE CORPORATION ENTERED INTO AN AGREEMENT WITH THE DEPARTMENT OF REGIONAL AND INDUSTRIAL EXPANSION (DRIE) OF THE FEDERAL GOVERNMENT TO JOINTLY FUND ALONG WITH THE PROVINCE OF ONTARIO THE CORPORATION'S NEW CENTRE LOCATED IN WINDSOR, ONTARIO.

OPERATING FUNDS RELATING TO OPERATING EXPENDITURES ARE TREATED AS A SERVICE CONTRACT AND ARE PRESENTED IN "CONSULTING REVENUE" IN THE STATEMENT OF OPERATIONS. CAPITAL FUNDS ARE INCLUDED IN THE STATEMENT OF RESERVE FOR CAPITAL ASSETS.

(F) WORK IN PROCESS

INVENTORY OF WORK IN PROCESS REPRESENTS CONSULTANTS' TIME AND OTHER PROJECT COSTS ON CLIENT PROJECTS AT ESTIMATED NET REALIZABLE VALUE.

(G) PENSION PLAN

EMPLOYEES BECOME MEMBERS OF THE CORPORATION PENSION PLAN AFTER COMPLETING ONE YEAR OF CONTINUOUS SERVICE AT WHICH TIME EMPLOYER CONTRIBUTIONS ARE MADE RETROACTIVE TO DATE OF COMMENCEMENT OF EMPLOYMENT.

THE CENTRE ACCRUES PENSION COST FOR EMPLOYEES FROM THE DATE OF THEIR EMPLOYMENT REGARDLESS OF WHETHER OR NOT THEY HAVE VESTED WITH THE EMPLOYEE AT THE YEAR END.

2. BASIS OF OPERATIONS

EFFECTIVE NOVEMBER 17, 1982, THE ONTARIO CENTRE FOR ADVANCED MANUFACTURING WAS ESTABLISHED AS A SCHEDULE II CROWN AGENCY WITHOUT SHARE CAPITAL BY AN ACT OF THE ONTARIO LEGISLATURE. THE APPROVED OPERATING PERIOD WAS ORIGINALLY DESIGNATED FOR THE FIVE YEARS ENDED NOVEMBER 15, 1987. DURING FISCAL 1987 THE OPERATING PERIOD WAS EXTENDED BY THE MINISTER TO DECEMBER, 1988.

THE OBJECTIVE OF THE CORPORATION IS TO ACCELERATE THE UTILIZATION OF ADVANCED MANUFACTURING TECHNOLOGY THROUGH PROGRAMS PROMOTING BOTH AWARENESS AND APPLICATIONS AND TO ENCOURAGE THE GROWTH OF SUPPORTIVE ADVANCED MANUFACTURING INDUSTRIES IN ORDER TO IMPROVE THE PRODUCTIVITY AND COMPETITIVENESS OF ONTARIO INDUSTRY AND COMMERCE.

IN ORDER TO ACCOMPLISH THESE OBJECTIVES THE CORPORATION HAS ESTABLISHED THREE OPERATING CENTRES. THE ROBOTICS AND CAD/CAM CENTRES WERE OPENED IN FISCAL 1983 AND THE WINDSOR CENTRE WAS OPENED IN FISCAL 1985.

3. COMMITMENTS

THE CORPORATION HAS ENTERED INTO NET-NET LEASE ARRANGEMENTS FOR ITS FOUR OPERATING LOCATIONS IN PETERBOROUGH, CAMBRIDGE, REXDALE AND WINDSOR WHICH REQUIRE AN ANNUALIZED LEASE PAYMENT OF APPROXIMATELY \$234,000 (1987 AND 1986).

THE CORPORATION HAS OPTIONS TO RENEW THESE FACILITY LEASES AT NEGOTIATED TERMS AND RATES.

4. FIXED ASSETS

			1987	1986
	<u>COST</u>	<u>ACCUMULATED DEPRECIATION</u>	<u>NET</u>	<u>NET</u>
TECHNICAL EQUIPMENT	6,149,078	3,293,003	2,856,075	3,893,172
OFFICE EQUIPMENT	1,075,402	486,538	588,864	691,481
FURNITURE & FIXTURES	884,803	460,418	424,385	475,383
LEASEHOLD IMPROVEMENTS	<u>1,790,591</u>	<u>1,497,511</u>	<u>293,080</u>	<u>728,513</u>
	<u>\$9,899,874</u>	<u>\$5,737,470</u>	<u>\$4,162,404</u>	<u>\$5,788,549</u>

Board of Directors

Larry Buganto
President
T.I. Canada Inc.
London

Len Carpenter
President
Burlington Die Casting Ltd.
Burlington

Don Cowan
Department of Computer Science
University of Waterloo
Waterloo

Les Groombridge
Director of Planning & Development
City of Peterborough
Peterborough

Wayne Joslin
President and C.E.O.
Reuter-Stokes Canada Limited
Cambridge

Merle Kriss (Chairman)
Assistant General Manager
Corporate Banking Division
The Toronto Dominion Bank
Toronto

William Moeser
(Retired)
Former Vice President
Lear Siegler
Kitchener

Girvan Patterson
Ventures II Inc.
Ottawa

Stuart Robertson
Vice Principal, Community Services
Sir Sandford Fleming College
Peterborough

Ross Strickland
Vice President & General Manager
Ex-Cell-O Corporation Ltd.
London

Graham Whitehead
President
Vadeko International Inc.
Mississauga

Les Woodcock
International Staff Representative
United Steel Workers of America
Sault Ste. Marie

Officers

President
Ken Jones

Vice President & General Manager
OCAM's Robotics Centre
Harry Lowe

Vice President, Finance
Barrie Hawkins

Vice President & General Manager
OCAM's CAD/CAM Centre
John Richardson

OCAM Centres

Ontario Centre for Advanced Manufacturing

Central Office
190 Attwell Drive, Suite 402
Rexdale, Ontario M9W 6H8
(416) 675-4363

Canada-Ontario Centre for Advanced Manufacturing - Windsor

2795 Kew Drive
Windsor, Ontario N8T 3B7
(519) 974-3377

OCAM's CAD/CAM Centre

400 Collier-MacMillan Drive
Cambridge, Ontario N1R 7H7
(519) 622-3100

OCAM's Robotics Centre

743 Monaghan Road
Peterborough, Ontario K9J 5K2
(705) 876-1611

MINISTRY OF INDUSTRY, TRADE AND TECHNOLOGY

Policy and Technology Division
3rd Floor, Hearst Block
900 Bay Street, Queen's Park
Toronto, Ontario M7A 2E1
(416) 963-1373

